UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,104	03/08/2007	Stefan Golz	004974.01207	1020

22907 7590 12/10/2007
BANNER & WITCOFF, LTD.
1100 13th STREET, N.W.
SUITE 1200
WASHINGTON, DC 20005-4051

EXAMINER	
CHEU, CHANGHWA J	
ART UNIT	PAPER NUMBER
1641	

MAIL DATE	DELIVERY MODE
12/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/588,104	GOLZ ET AL.	
	Examiner	Art Unit	
	Jacob Cheu	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18 and 21-23* is/are pending in the application.

4a) Of the above claim(s) *1,3-18 and 21-23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/31/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group II, claim 2, in the reply filed on 11/28/2007 is acknowledged.

2. Claims 19-20 and 24-26 had been cancelled.

3. Currently, claim 2 is under examination. Claims 1, 3-18, 21-23 are withdrawn from further consideration.

Claim Rejections - 35 USC § 112

Enablement

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 2 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As set forth in *In re Wands, 858 F .2d 731, 8 USPQ2d 1400 (Fed. Cir. 1988)*, enablement requires that the specification teach those skilled in the art to make and use the invention without undue experimentation. Factors to be considered in determining, whether a disclosure would require undue experimentation include 1) the nature of the invention, 2) the state of the prior art, 3) the predictability or lack thereof in the art, 4) the amount of direction or guidance present, 5)

the presence or absence of working examples, 6) the quantity of experimentation necessary, 7) the relative skill of those in the art, and 8) the breadth of the claims.

The instant invention provides a human NPEPPS which is associated with the cardiovascular diseases, dermatological diseases, endocrinological diseases, metabolic diseases, cancer, gastroenterological diseases, muscle-skeleton diseases, neurological diseases, respiratory diseases, inflammation and urological diseases. The instant invention directs to a screening assay for the identification of compounds useful in the treatment or prevention of cardiovascular diseases, dermatological diseases, endocrinological diseases, metabolic diseases, cancer, gastroenterological diseases, muscle-skeleton diseases, neurological diseases, respiratory diseases, inflammation and urological diseases.

However, in view of the data provided by applicants, one ordinary skill in the art would not conclude that merely identifying compounds capable of modulating NPEPPS polypeptide activity would be sufficient as a "useful" treatment to the above mentioned disease. It is noted that applicant conducted analysis of tissues obtained from various patients suffered from different diseases and compared to normal/or symptom-free control (See Table 1; See Section 0042-0045). The results indicate some difference, either higher or lower of the expression of the NPEPPS mRNA in the patients' tissue compared with the normal samples from the symptom free people. Supra. Examiner acknowledges that NPEPPS would be considered a biomarker for disease *diagnosis* based on data of Table 1 (emphasis added). Nevertheless, without further research or confirmation, it would be a far-fetch to conclude that NPEPPS is a target molecule for "useful treatment" for the above mentioned diseases.

The upregulation (e.g. higher level) or downregulation (e.g. lower level) of a particular protein for a particular disease does not warrant a causal-link that modulation of said particular protein is the key for successful treatment. Applicant also does not provide ANY treatment data with respect to ANY recited disease. Furthermore, no example and no guidance is provided as to the evaluation of the success of the treatment. For example, no particular markers or functionality

test of a particular disease have been mentioned as to the evaluation criteria. In another word, no disclosure of how one ordinary skill in the art in view of the data would extrapolate to a successful treatment to the instant recited disease. Moreover, it is known that not every overexpressed protein is the cause of the disease. For instance, Sakoda et al. found out that PC-1 protein is overly expressed in the insulin resistance patients. However, SaKoda et al. disclose that the increased PC-1 expression is not casually related to insulin resistance (See Sakoda et al. Diabetes 1999 Vol. 48, page 1365-1371; whole document, particularly Abstract). Similarly, Laurentiis et al. also observe that overly expressed HER-2 metastatic breast cancer would not respond to endocrine treatment, albeit with positive endocrine estrogen receptor expression (See Laurentiis et al. Clin Cancer Res 2005 Vol. 11, page 4741-4748; See Abstract). In addition, applicant had not disclosed the nexus between the NPEPPS and the cause of the disease. It is not known what is the relationship between the activity of the NPEPPS and the occurrence or development of the recited disease. Applicant had not disclosed any particular portion(s) of the NPEPPS responsible with its activity and related to any recited disease. The scope of the claims must bear a reasonable correlation with the scope of enablement. *In re Fisher*, 166 USPQ 18(CCPA 1970) , the court indicates that the more unpredictable an area is, the more specific enablement is necessary in order to satisfy the statute. As discussed earlier,
thus far, applicant merely provides data with respect to difference of the NPEPPS expression in various tissues from the recited patients. At most, it is a diagnosis method for identifying the recited diseases. Nevertheless, there exists a unpredictable gap between extrapolation from diagnosis to treatment, and applicant's data are not sufficient to bridge such gap.

In view of the quantity of experimentation necessary, the unpredictability of the art, the lack of sufficient guidance in the specification, the limited working examples, and the limited amount of direction provided given the breadth of the claims, it would take undue trials and errors to practice the claimed invention.

Written Description

6. Claim 2 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The written description in this case only sets forth NPEPPS and therefore the written description is not commensurate in scope with the claims which read on allelic variants of NPEPPS.

The claims are drawn to polypeptides having at least 80%, 85%, 90%, 95% or 99% sequence identity with a particular disclosed sequence (See Section 0048-0052). It is a genus claim encompasses the above variation.

To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of complete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, or any combination thereof. In this case, the only factor present in the claim is a partial structure in the form of a recitation of percent identity. Further, there is no identification of any particular portion of the structure that must be conserved and correlated to the successful treatment for a particular kind of recited disease. Accordingly, in the absence of sufficient recitation of distinguishing identifying characteristics, the specification does not provide adequate written description of the claimed genus. Furthermore, as discussed above in the Enablement Rejection, applicant had not shown ANY data of successful treatment at the date when this application is filed.

Vas-Cath Inc. v. Mahurkar, 19USPQ2d 1111, clearly states "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the 'written description' inquiry,

whatever is now claimed." (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See *Vas-Cath* at page 1116). As discussed above, the skilled artisan cannot envision the detailed chemical structure of the encompassed genus of polypeptides, and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The compound itself is required. See *Fiers v. Revel*, 25 USPQ2d 1601 at 1606 (CAFC 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 2, step (i) and step (ii), it is not clear whether these two steps are the same. Particularly with respect to a method claim, it is in general to interpret the active step in sequence. However, applicant repeats the two (i) and (ii) step, particularly in step (i) "in the absence of said test compound" is an optional step because applicant uses "or". Applicant needs to clarify.

With respect to claim 2, it is not a complete claim since no results, i.e. higher activity or lower activity is linked to a "useful treatment".

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claim 2 is rejected under 35 U.S.C. 102(b) as being anticipated by Yang et al. (WO 01/46443; applicant's IDS reference).

Yang et al. disclose a method of screening for therapeutic agents for treatment of disease. Yang et al. teach determining the activity of a NPEPPS polypeptide, i.e. SEQ 9, in the absence or presence of the test compound at different concentration (See claims 1, 16, 19 and 22). The compounds tested can be used for treatment of inflammation, cancer, infection, cardiovascular, neurological, endocrinological or metabolic diseases (See page 41-44).

11. Claim 2 is rejected under 35 U.S.C. 102(b) as being anticipated by Fontana et al. (WO 97/38114; applicant's IDS reference).

Fontana et al. disclose a method of screening for therapeutic agents for treatment of disease. Yang et al. teach determining the activity of a NPEPPS polypeptide, i.e. SEQ 6, in the absence or presence of the test compound at different concentration (See claims 1, 23-24). The compounds tested can be used for treatment of inflammation and cancer, (See page 51-52).

Conclusion

12. No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Cheu whose telephone number is 571-272-0814. The examiner can normally be reached on 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jacob Cheu
Examiner
Art Unit 1641

December 4, 2007

LONG V. LE 12/06/07
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600